

# **Water Reservation Strategy and Related Consumptive Use Issues**

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# **Water Reservation Strategy and Related Consumptive Use Issues**

**Introduction: Why we are here**

**State and Federal Mandates**

**State Implementation Tools**

**Primary Policy Issues**

**Summary and Schedules**

# Introduction

## ■ Why we are here

- Present the Board a proposed framework for moving forward consistent with State and Federal law
- Receive preliminary policy direction from the Board and input from the public
- Receive permission to workshop the framework with interested parties, and report back to the Board
- Receive guidance for dealing with new or pending CUP applications until framework is in place

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# **FEDERAL AND STATE MANDATES**

**WHAT IS OUR CHARGE?**

**Cecile Ross, Senior Attorney  
Office of Counsel**

# **FEDERAL MANDATE**

**Water Resource  
Development Act 2000**

# **STATE MANDATE**

**CHAPTER 373**

# **“ASSURANCES”**

**What initiatives will the SFWMD and Federal Government take to ensure that water made available by CERP will be quantified and legally protected for natural systems and other related water needs?**

# **WATER RESOURCES DEVELOPMENT ACT 2000 (WRDA) ASSURANCE OF PROJECT BENEFITS**

- **President and Governor Agreement**
- **Procedural Requirements—Programmatic Regulations, Project Implementation Reports, Project Cooperation Agreements**
- **Savings Clause**



# **PRESIDENT AND GOVERNOR AGREEMENT Executed on January 9, 2002**



. . . . State shall ensure, by regulation or other appropriate means, that water made available by each project in the Plan shall not be permitted for a consumptive use or

otherwise made unavailable by the State until such time as sufficient reservations of water for the restoration of the natural system are made under State law in accordance with the project implementation report for that project and consistent with the Plan

# **WRDA**

## **ASSURANCE OF PROJECT BENEFITS**

### **Programmatic Regulations**

- **Procedures to ensure protection of natural system and other water related needs consistent with goals of CERP**
- **Procedures for PIR's, PCA's, Interim Goals**
- **Protocol**

# **WRDA**

## **ASSURANCE OF PROJECT BENEFITS**

### **Project Implementation Reports**

- **Appropriate quantity, timing and distribution of water managed for the natural system**
- **Amount of water to be reserved for the natural system**

# WRDA

## ASSURANCE OF PROJECT BENEFITS

### Project Cooperation Agreement

- Requires the execution of state water reservations for natural system water before execution of a project cooperation agreement (PCA)
- Reservation consistent with PIR
- Operating Manuals must be consistent with water reservation

# **WRDA**

## **ASSURANCE OF PROJECT BENEFITS**

### **“SAVINGS CLAUSE”**

**No elimination or transfer—until a new source of water supply of comparable quantity and quality as that available on the date of enactment of this act is available to replace the water lost as a result of implementation of the Plan, the Secretary and the non-Federal sponsor shall not eliminate or transfer existing legal sources of water, including those for:**

- (i) an agricultural or urban water supply;**
- (ii) allocation or entitlement to the Seminole Tribe of Florida;**
- (iii) the Miccosukee Tribe of Indians of Florida;**
- (iv) water supply for Everglades National Park; and**
- (v) water supply for fish and wildlife.**

# **STATE MANDATES FOR CERP IMPLEMENTATION**

## **Chapter 373, Florida Statutes**

- **District local sponsor for projects**
- **Project must meet all legal responsibilities in Chapter 373, F.S., for water supply, water quality, flood protection, threatened and endangered species and other water or natural resources.**

## **STATE MANDATES FOR CERP IMPLEMENTATION**

- **Sets out process for acquiring project approval by Department of Environmental Protection**
- **Requires identification of increases in water supplies from a project component**
- **Requires allocation or reservation of increased water supplies under State law**

# **STATE MANDATES FOR CERP IMPLEMENTATION**

**§ 373.1501(5)(e), F.S.**

**SFWMD must:**

**“provide reasonable assurances that the quantity of water available to existing legal users will not be diminished by implementation of project components so as to adversely impact existing legal users . . .”**



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# STATE IMPLEMENTATION TOOLS

- **Consumptive use permitting**
- **Water reservations**
- **Water shortage plan**
- **Minimum flows and levels and recovery & prevention strategies**

# CONSUMPTIVE USE PERMITS

- All water users required to get a permit or be exempt as domestic use = "existing legal uses"
- Right to use water is not a "property right"
  - Defined by a permit for a finite duration—permits expire
  - Upon expiration user must re-establish right based on updated conditions for issuance
- Conditions for permit issuance designed to protect water resources from harm up to drought condition

## **WATER RESERVATIONS (§373.223(4), F.S.)**

**“The governing board or the department, by regulation, may reserve from use by permit applicants, water in such locations and quantities, and for such seasons of the year, as in its judgment may be required for the protection of fish and wildlife or the public health and safety. Such reservations shall be subject to period review and revision in the light of changed conditions. However, all presently existing legal uses of water shall be protected so long as such use is not contrary to the public interest.”**

# RESERVATION OF WATER

- Used as a condition for permit issuance
- Incorporated into water shortage plan and operations

# RESERVATION OF WATER

**Consumptive use protections when establishing reservations:**

- **State law protects “existing legal use” insofar as the use is not contrary to the public interest**
  - **Public interest determined by the Governing Board**

# MINIMUM FLOWS AND LEVELS

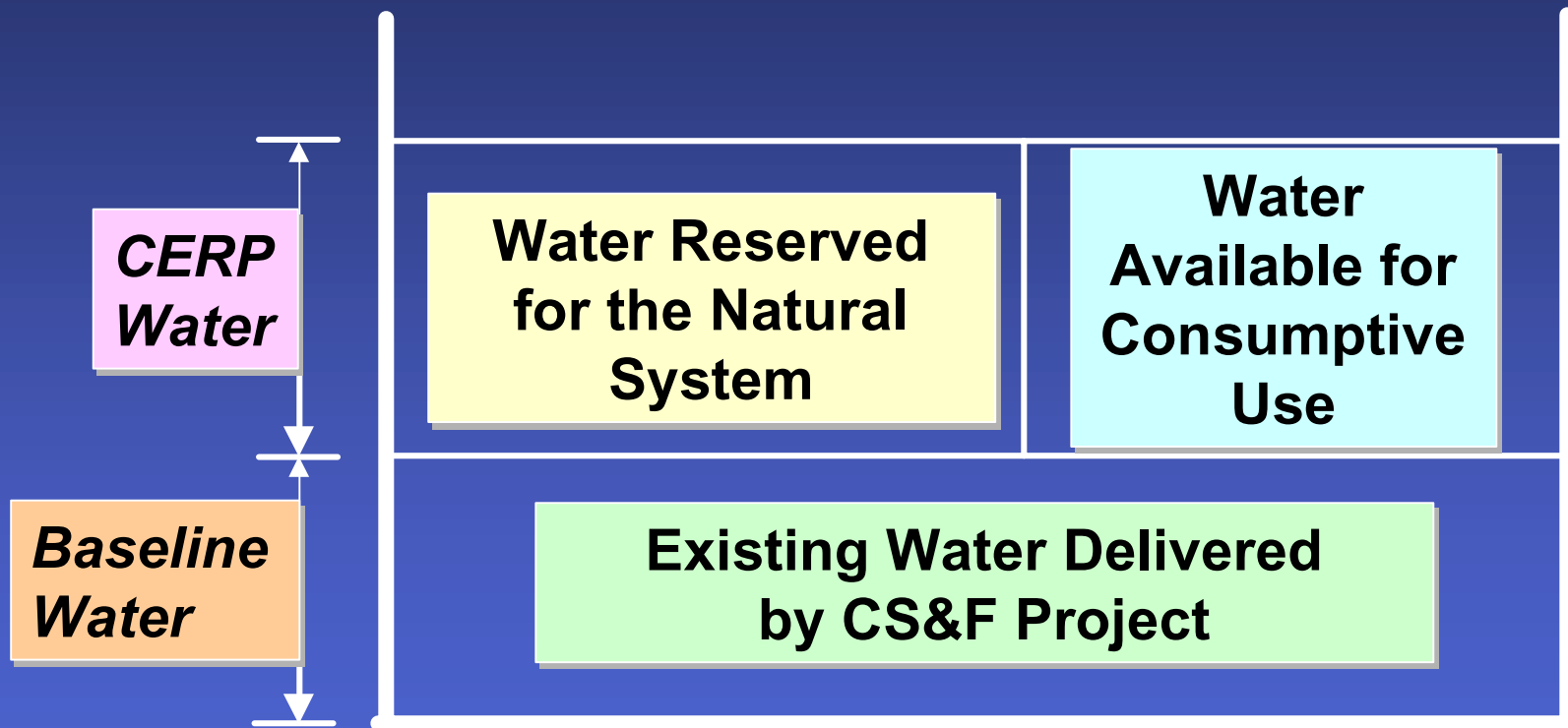
- Tool to help prevent significant harm to the water resources
- Recovery and prevention plans approved by Governing Board
- Additional permit allocations limited to allow recovery of MFL
- Established for Everglades National Park, Water Conservation Areas, Lake Okeechobee, Caloosahatchee River, and Biscayne Aquifer

# **WATER SHORTAGE PLAN**

- **Identifies process for managing water supplies during droughts**
- **Temporary cutbacks on water uses imposed based on severity of drought, potential for environmental harm and potential for impacts caused by consumptive use withdrawals**
- **Incorporates minimum flows and levels and water reservations**



# Identifying Water Made Available by CERP



# Discussion



# **Water Reservation Strategy and Related Consumptive Use Issues**

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# Primary Policy Issues

- I. How to protect existing legal sources of water for natural systems & other water related needs
- II. How to protect water made available by CERP for natural systems & other water related needs
- III. Interim consumptive use permit implementation strategy

# **I. How to protect existing legal sources of water for natural systems & other related needs**

## **■ Major Topics:**

**A. Define existing legal sources**

**B. Define 12/2000 existing legal source base conditions**

**C. Quantify existing legal sources of water**

**D. Protect existing legal sources**

- Consider during CERP design & implementation**
- Develop Regional Water Availability rule**
- Develop Rainfall Driven Reservation rule**

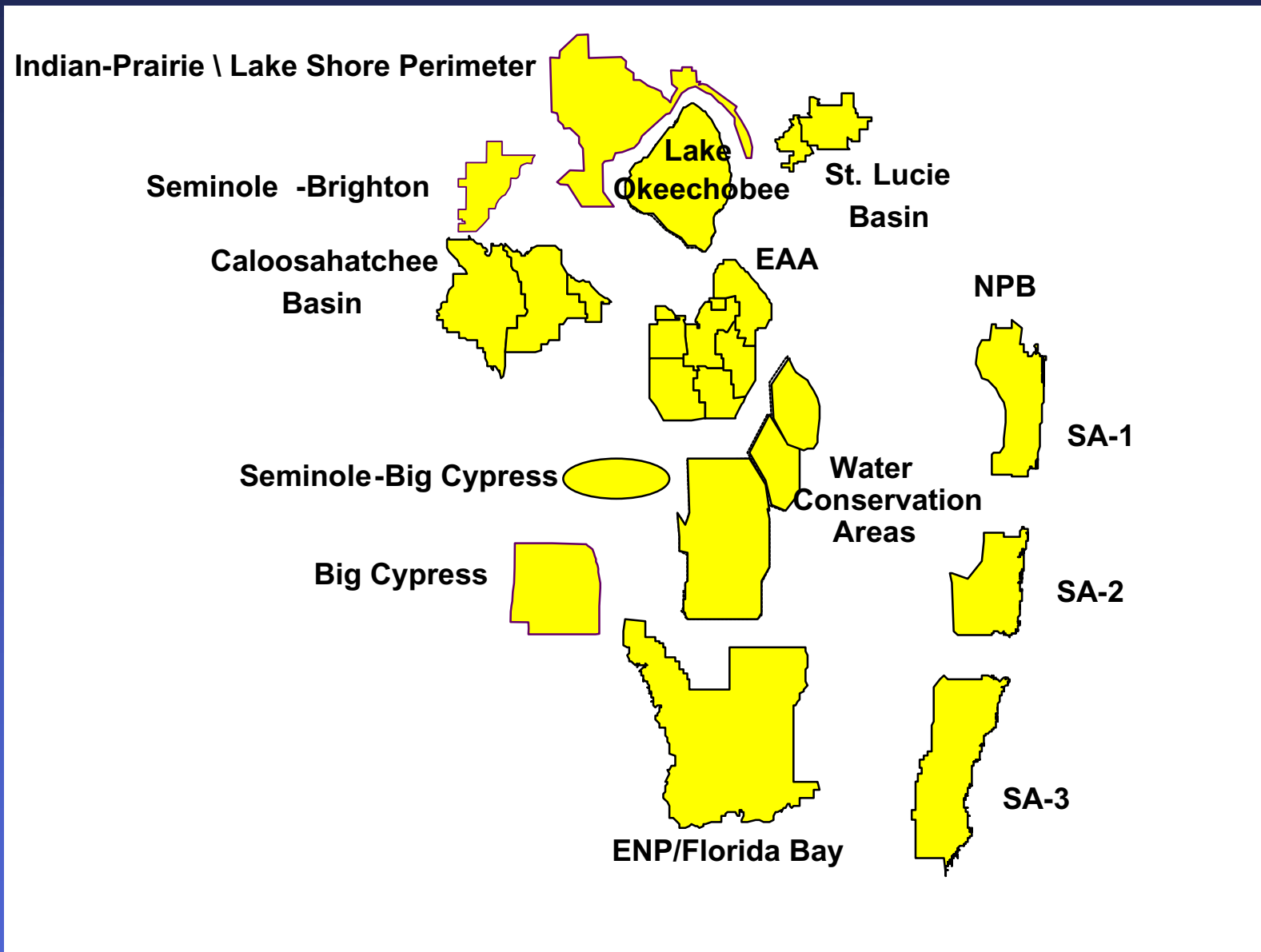
## **I.A. What are existing legal sources?**

- **WRDA 2000 Savings Clause**
  - Existing legal source protection
  - Consider during CERP implementation
  - Must have replacement source comparable quality and quantity
  - Make up prior to elimination or transfer

## **I.A. What are existing legal sources?**

- **Source of supply of water available on December 11, 2000 for agriculture and urban, Seminole and Miccosukee Tribes, Everglades National Park and fish and wildlife purposes**

# Proposed Existing Legal Source Basins

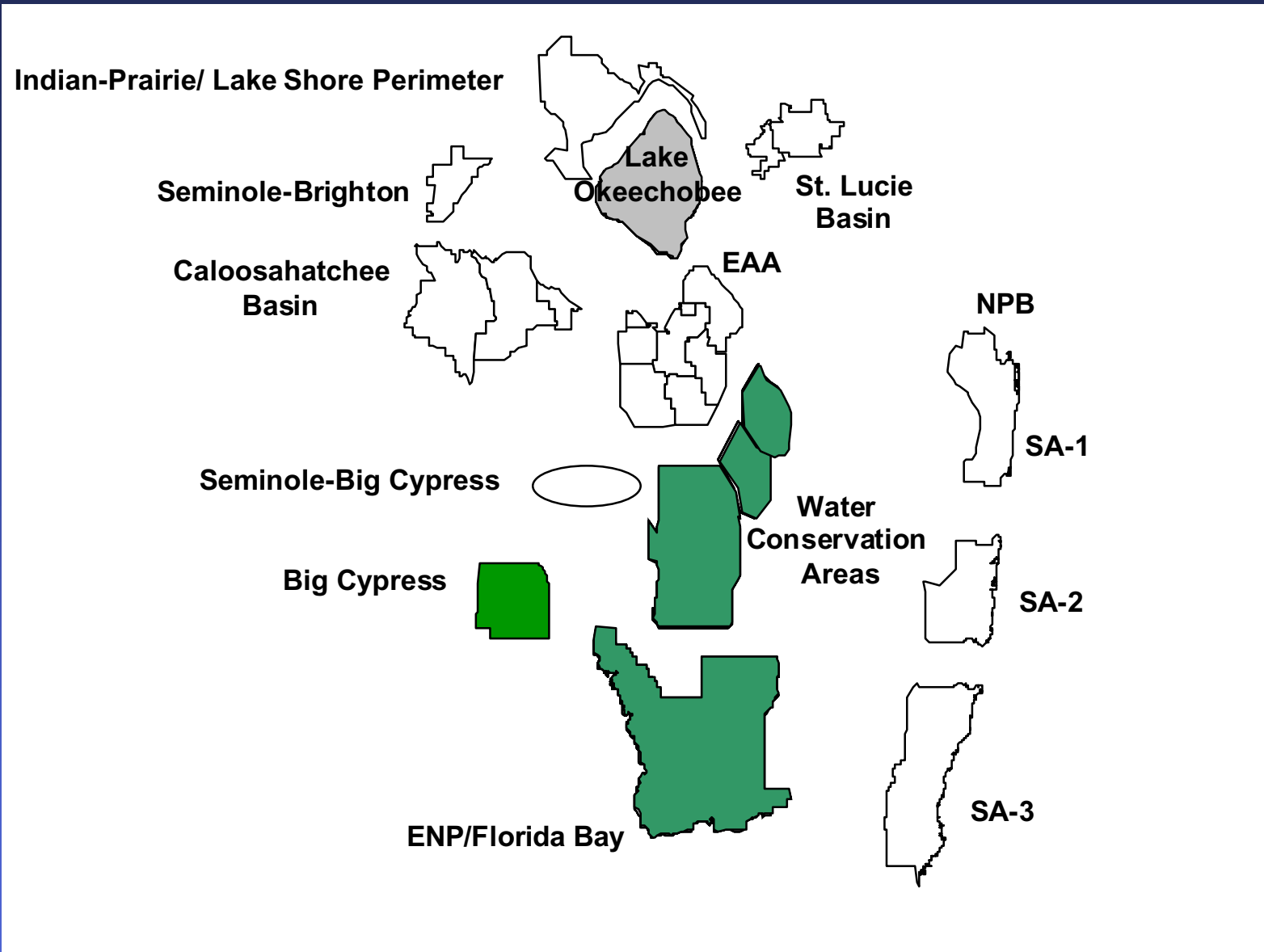




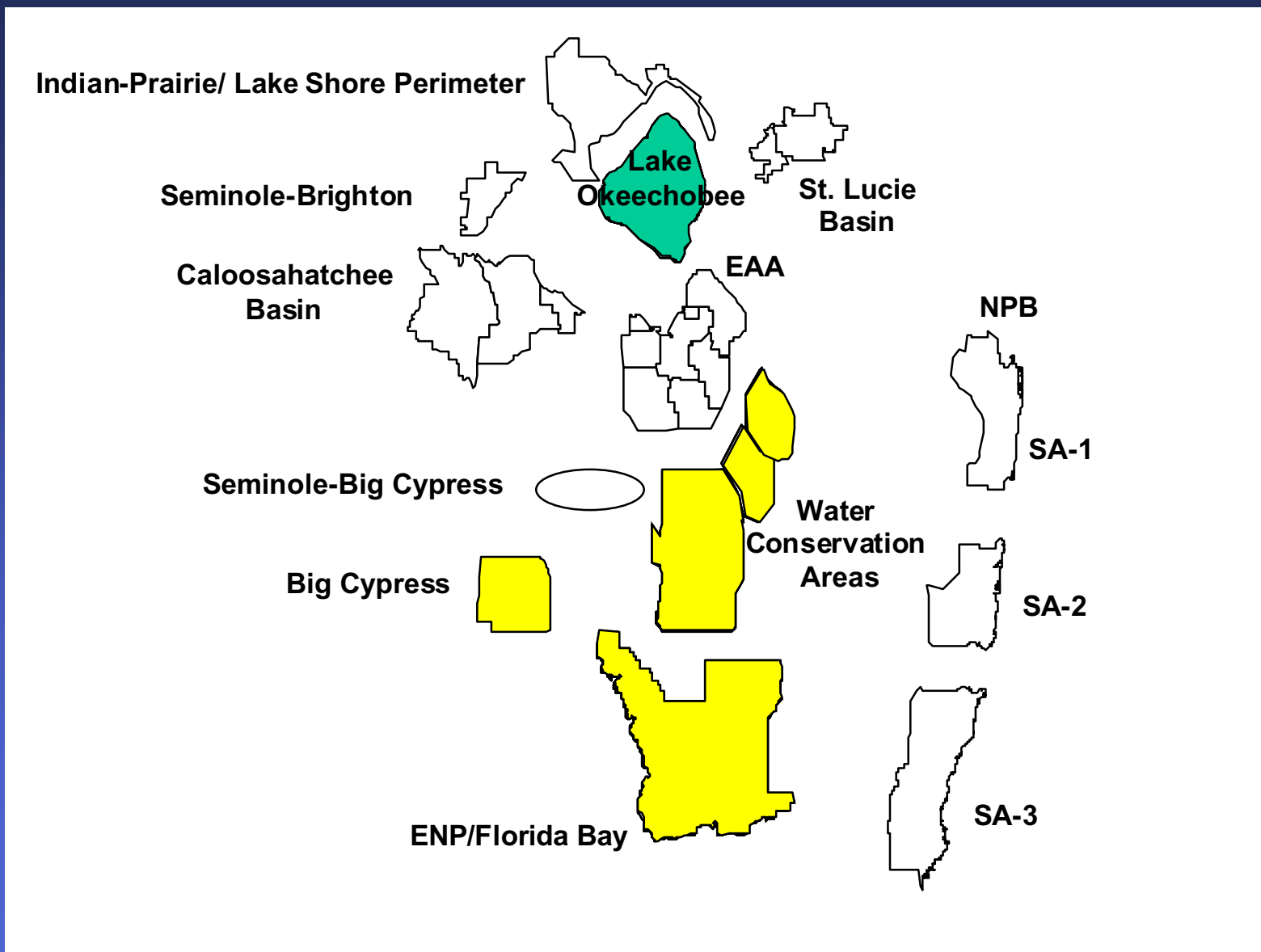
## **I.A. What are existing legal sources?**

- **Existing Legal Sources include:**
  - **Primary, secondary & tertiary sources**
    - **Local rainfall, storage and delivered quantities**
  - **Non-consumptive use supplies for resource protection, including regional deliveries for saltwater intrusion, wetland protection, canal recharge**
  - **Applies in all hydrologic conditions**
  - **Excludes regional water to tide**

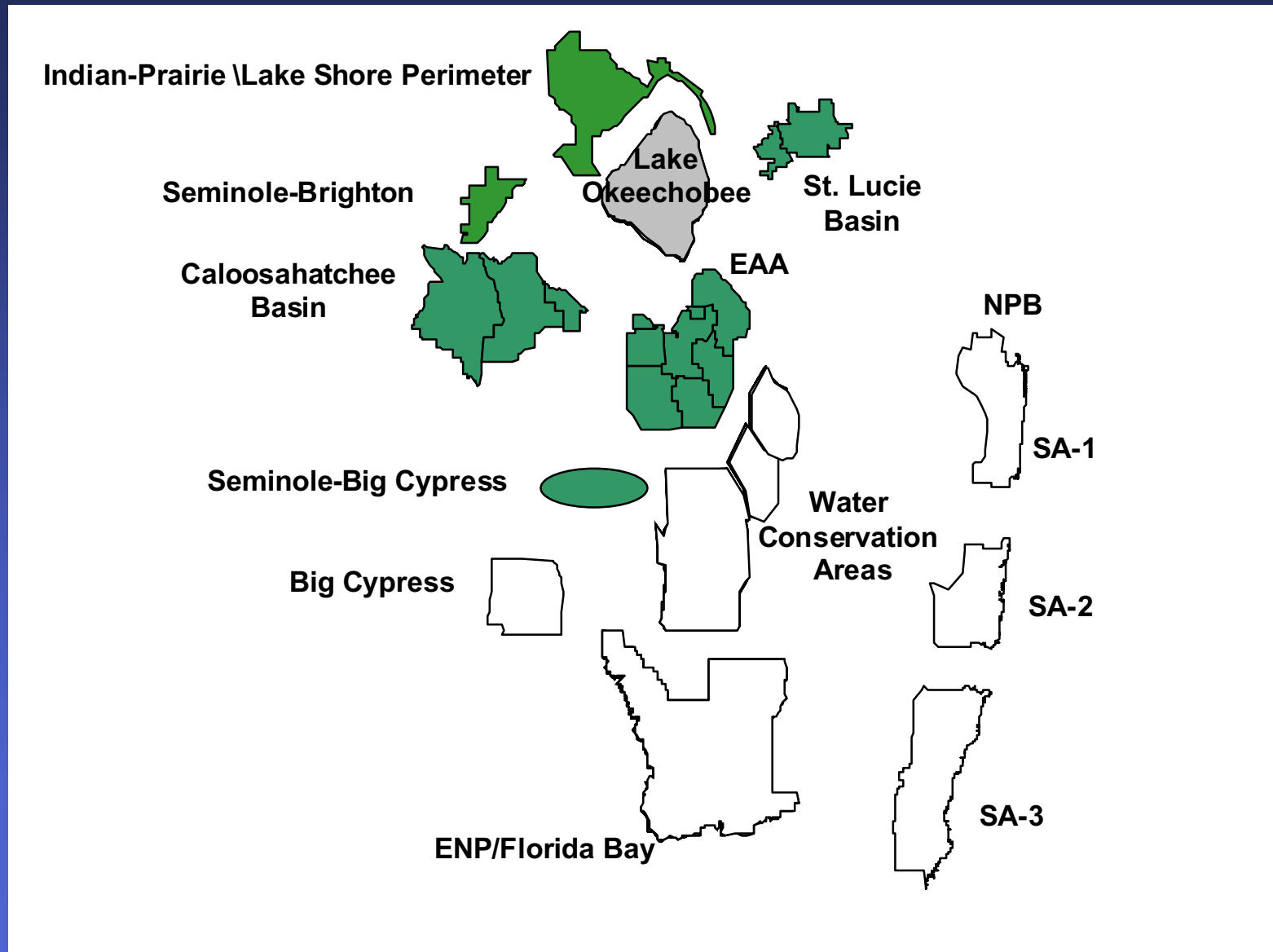
# Environmental Water Supply- Primary Source



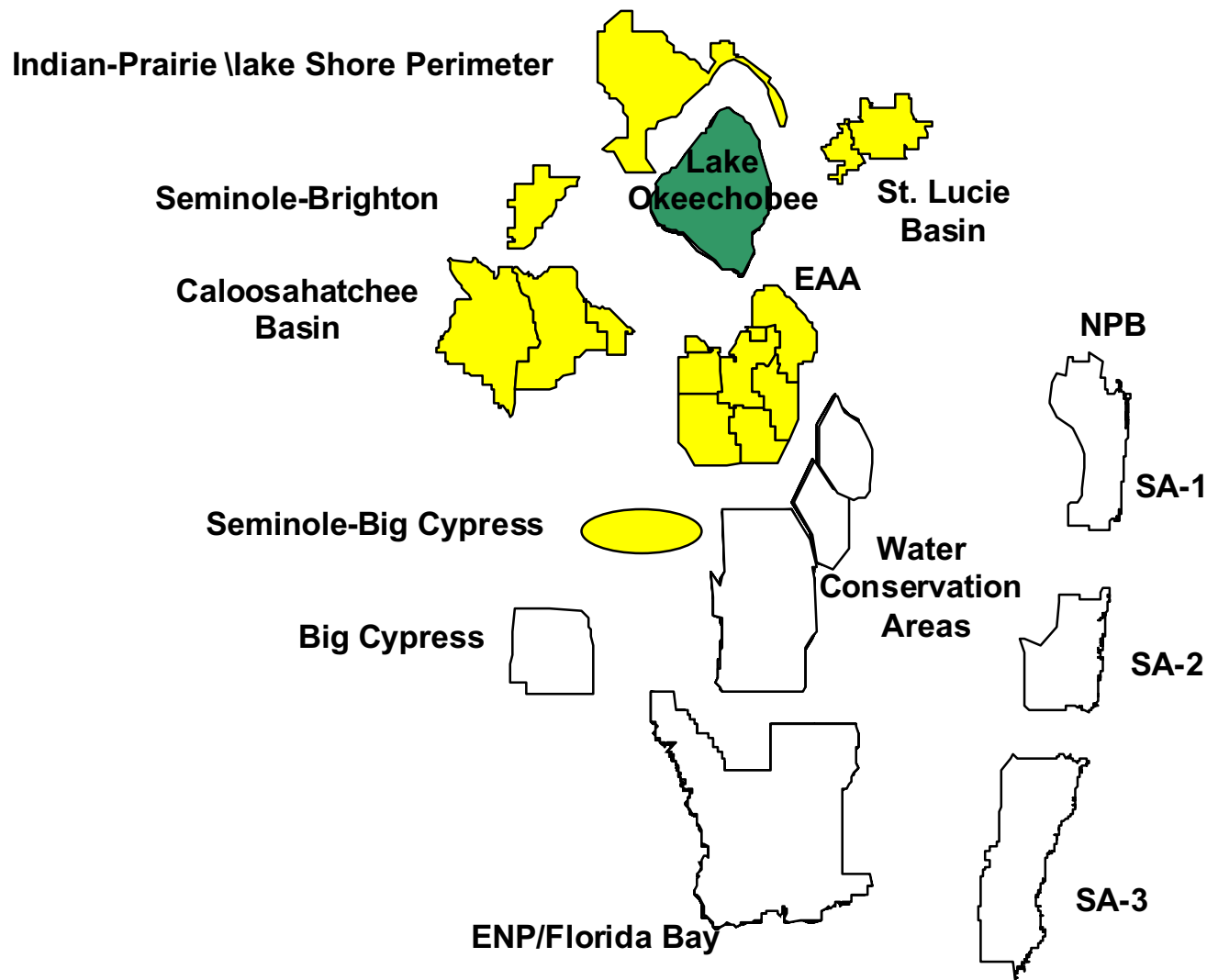
# Environmental Water Supply- Secondary Source



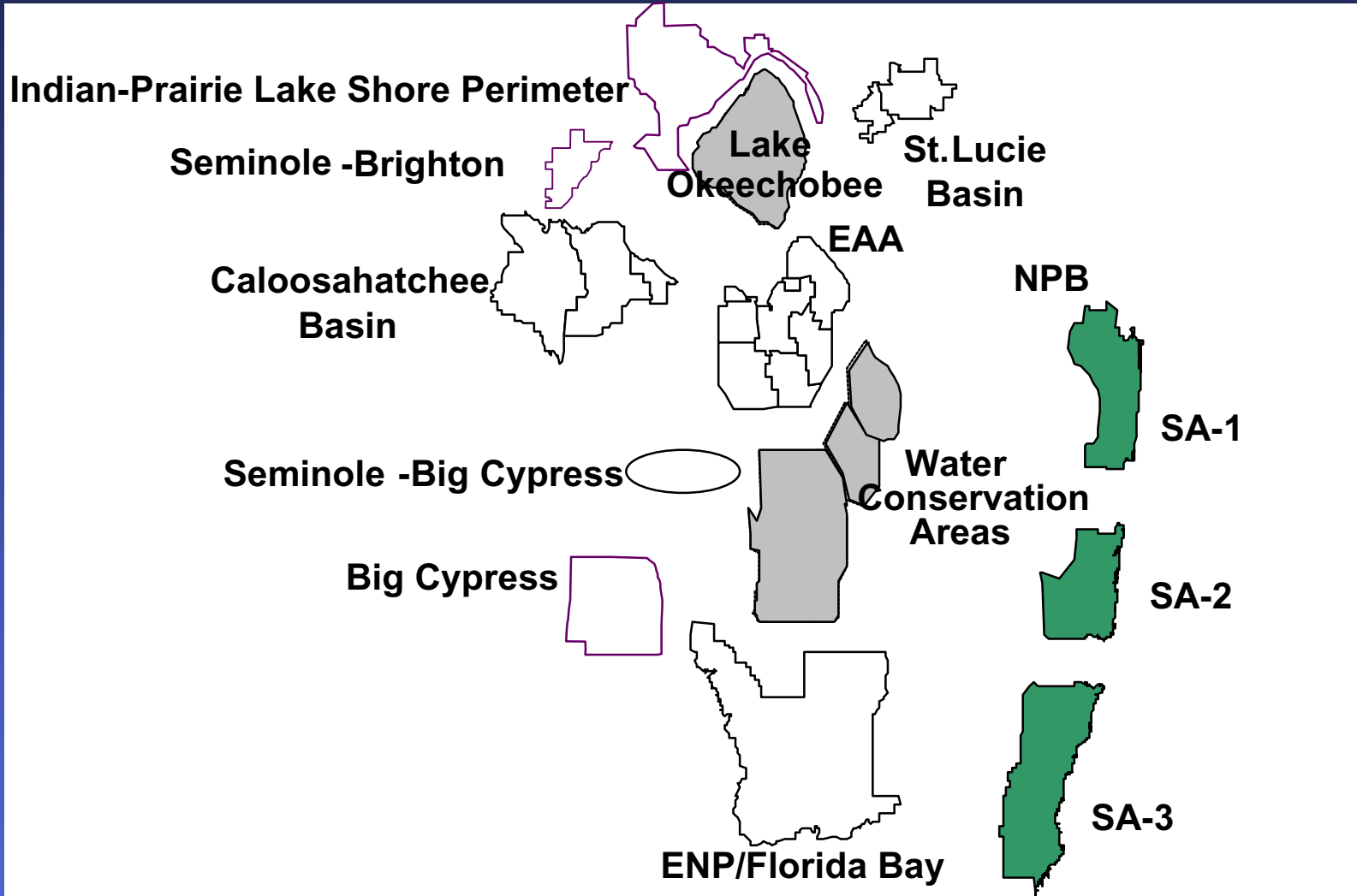
# Lake Okeechobee Service Area Agricultural Water Supply Sources



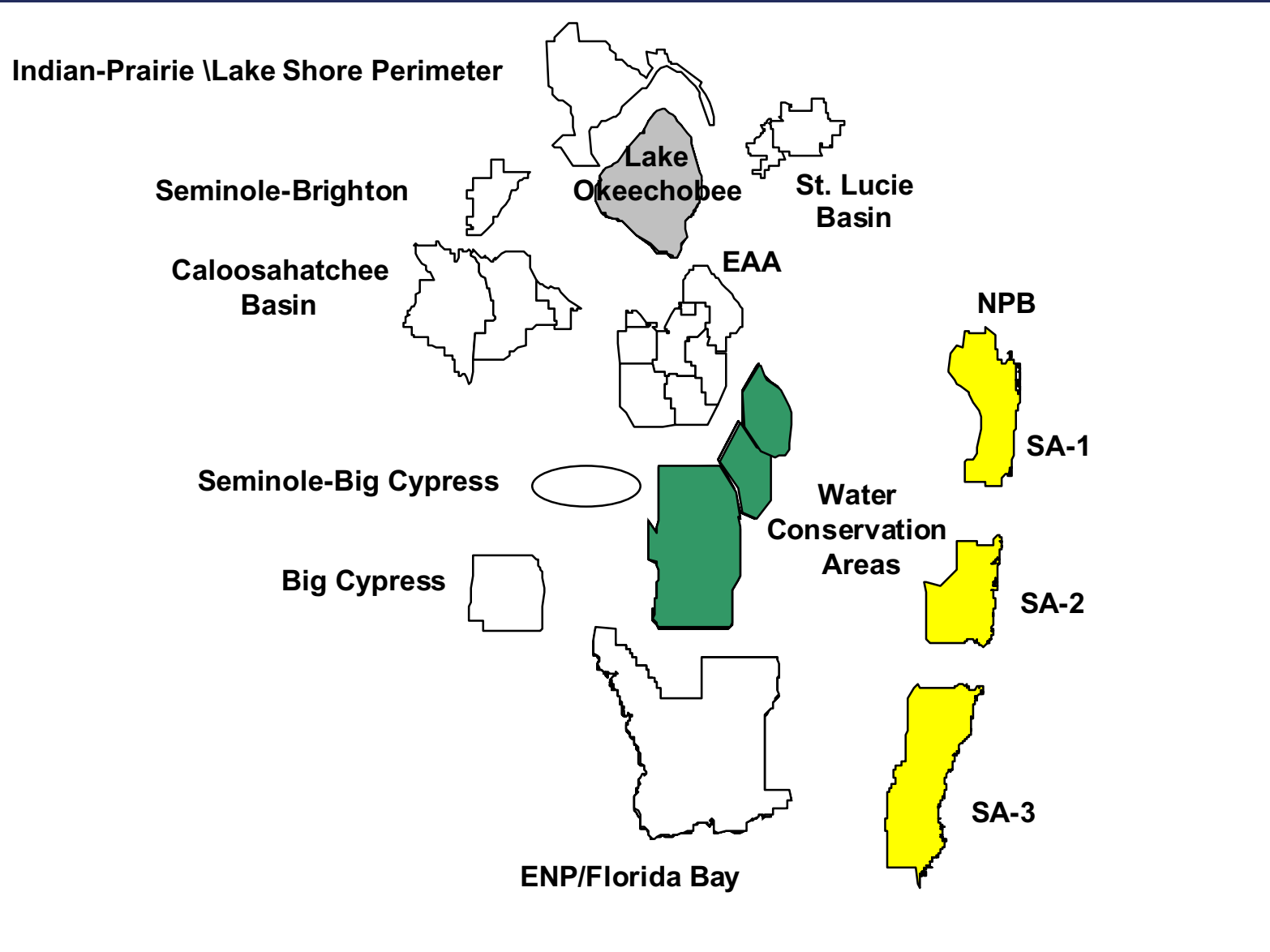
# Lake Okeechobee Service Area Agricultural Water Supply Sources



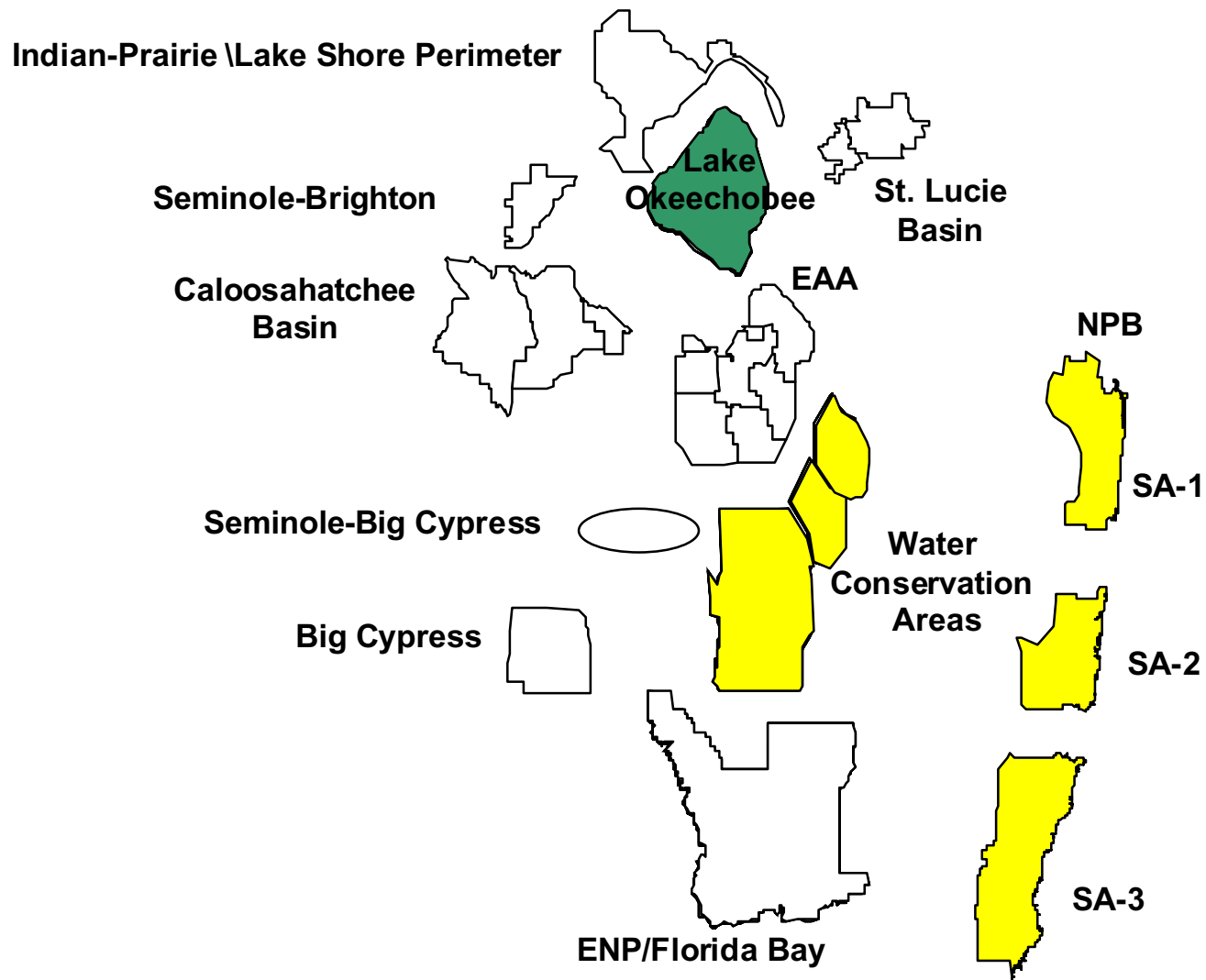
# Lower East Coast Service Area- Primary Source



# Lower East Coast Service Area- Secondary Source



# Lower East Coast Service Area- Tertiary Source





## **I.B. What is the base condition for existing legal sources?**

- **Use CERP 2000 base regional modeling assumptions including; hydrology, land use, demands and operations:**
  - 36 year historical rainfall period of record
  - 2000 land use
  - Permitted urban supply as of 12/2000
  - Permitted agricultural supply as of 12/2000
  - WSE Schedule for Lake Okeechobee
  - Regulation schedules for WCA's

## **I.B. What is the base condition for existing legal sources?**

- **Use CERP 2000 base regional modeling assumptions including; hydrology, land use, demands and operations (con't):**
  - **Rainfall delivery schedule for ENP**
  - **2000 water shortage policy including SSM**
  - **Tribal demands**
  - **STA and BMP makeup water deliveries**
  - **Coastal canal maintenance deliveries**

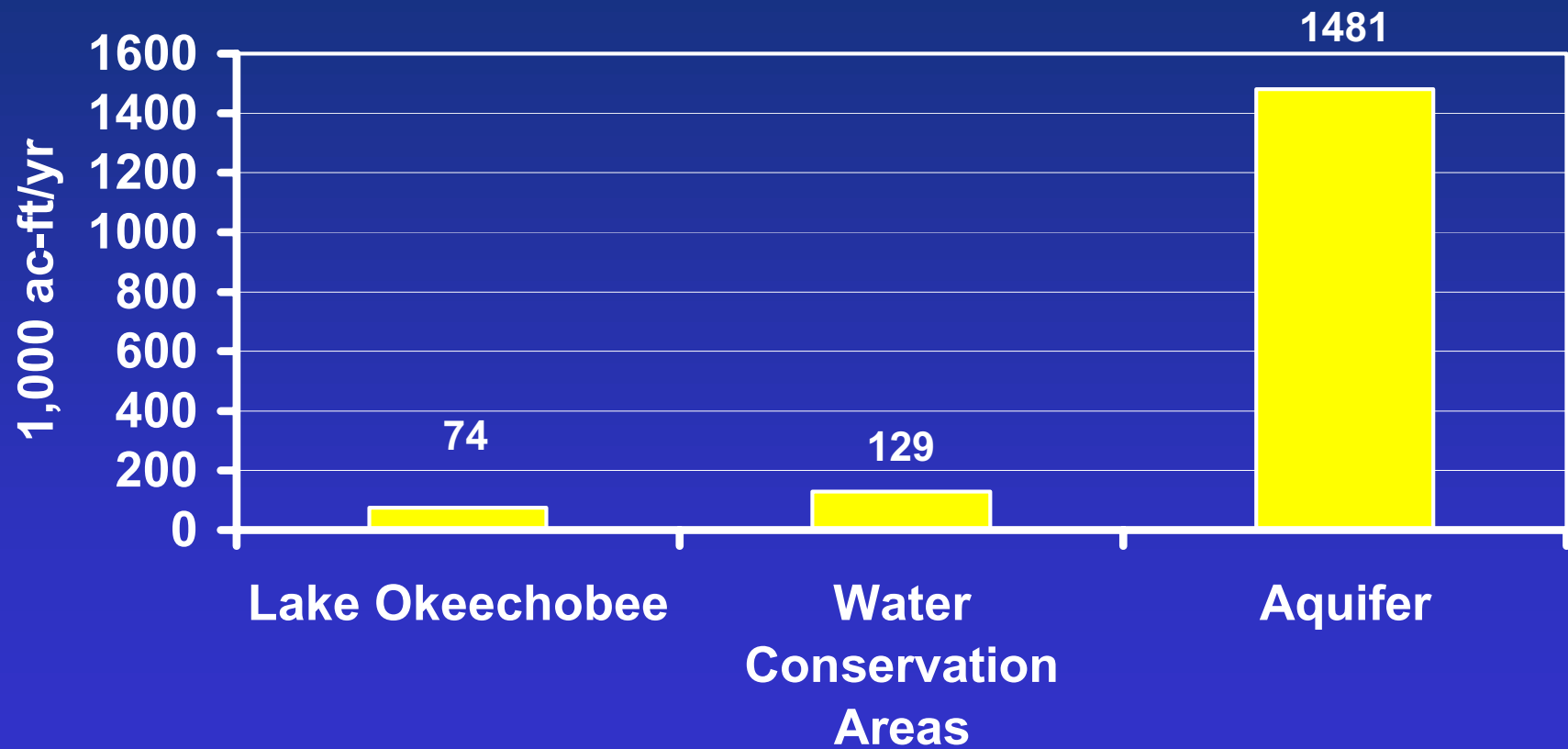
## **I.C. How will existing legal sources be quantified?**

- **Regional Modeling:**

- **Simulate performance of the system using the SFWMM under full 36 years of historical rainfall conditions (1965-2000)**
- **Quantify volume available to existing legal source basin under all rainfall conditions**

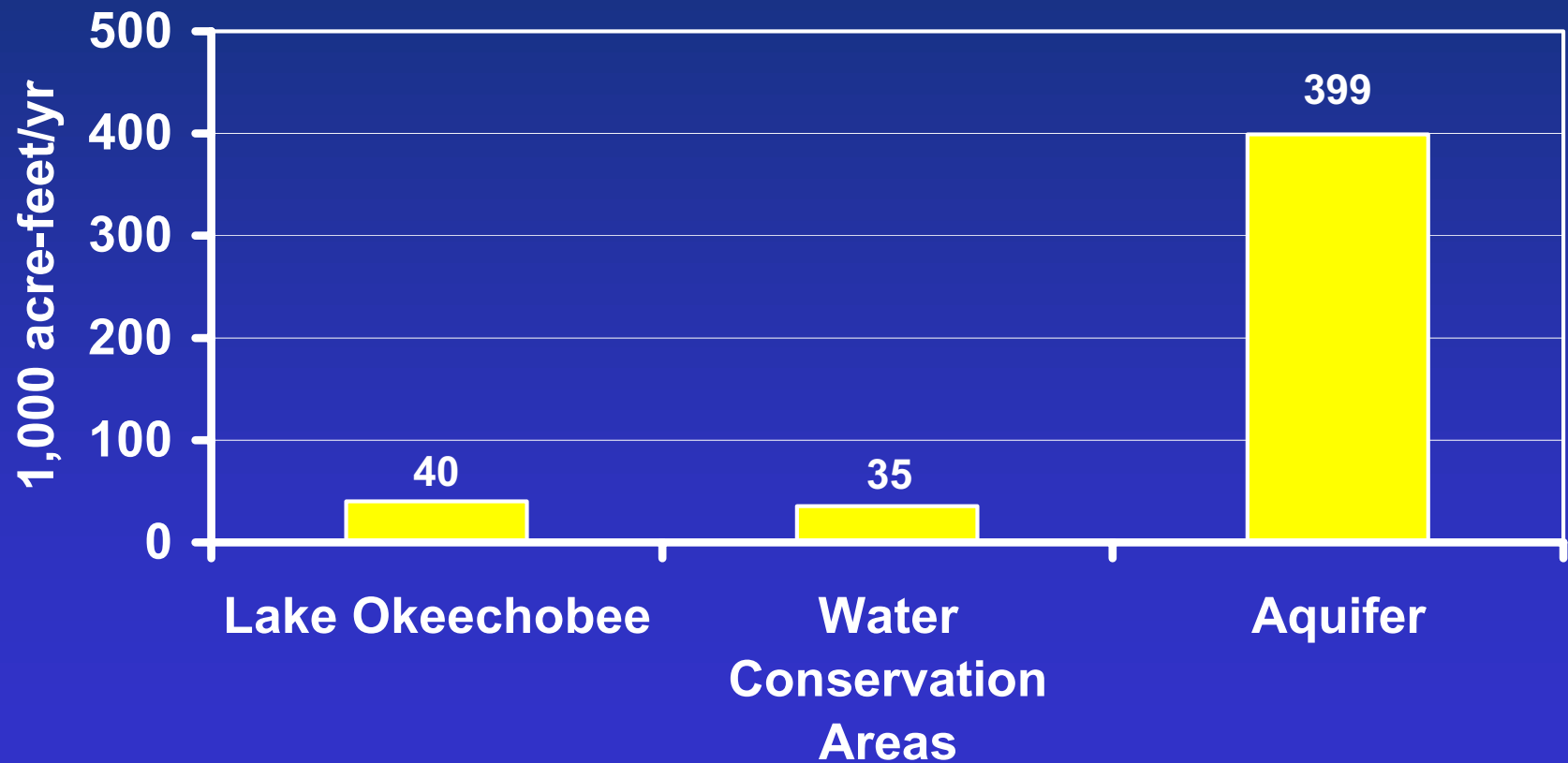
# Existing Sources of Water Supply for LEC Service Areas

Estimated Average Annual Delivery



# Existing Sources of Water Supply for LEC Service Area 1

Estimated Average Annual Delivery



## **I.D. How will existing legal sources be protected?**

- **Protect existing legal sources during CERP design and implementation:**
  - Existing legal source curves considered when designing each PIR
  - Source curves cannot be reduced by a CERP project through full range of hydrologic conditions
  - Source shift must be documented in the PIR
    - Source shift cannot occur until replacement water is made available and only after project is constructed, tested and operated

## **I.D. How will existing legal sources be protected?**

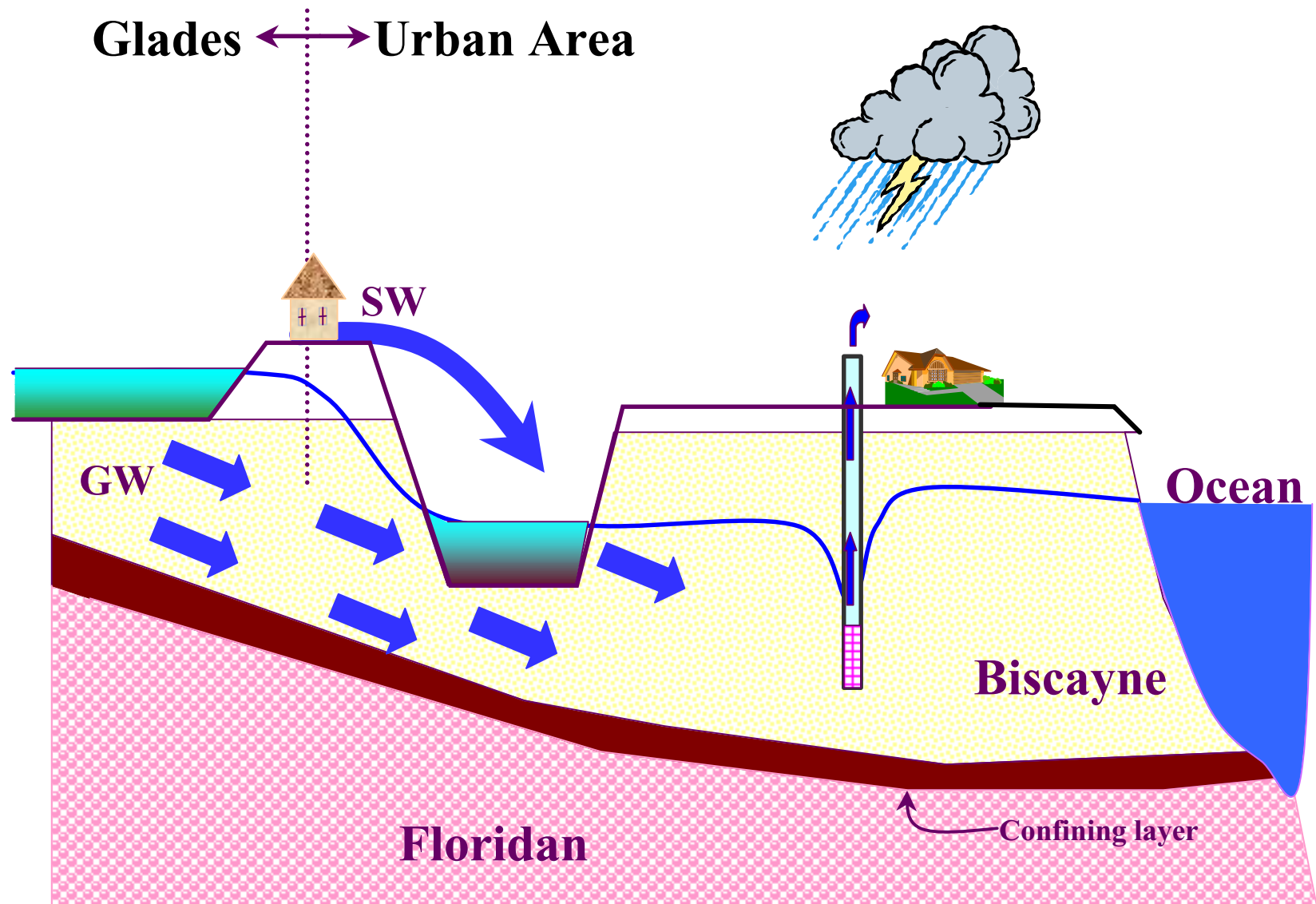
- **Develop Regional Water Availability rule:**
  - **To prevent increased deliveries of regional system water to consumptive users greater than 2000 quantities - boundary condition**
  - **To prevent allocation of potential future CERP natural system water to consumptive uses**
  - **Will not eliminate or transfer any existing legal source or impact any existing legal use**

## **I.D. How will existing legal sources be protected?**

- **The Regional Water Availability rule will be defined:**
  - **Expressed as a model boundary condition representing water entering service areas from regional system under a 1 in 10 drought condition**
    - **Surface water discharge to major canals**
    - **Ground water seepage through levees**
    - **Excludes excess regional water to tide**



# Regional Water Availability



## **I.D. How will existing legal sources be protected?**

- **How the Regional Water Availability rule will be used in the Consumptive Use Permitting process:**
  - **Maintain accounting ledger as each new consumptive use permit is reviewed which draws surface or groundwater from the regional system**
  - **Cumulative analysis of all existing permits plus new application**
  - **Adopt as rule in 2003**

## **I.D. How will existing legal sources be protected?**

- **Water available to consumptive and non-consumptive uses in a basin is defined as:**
  - **Regional water availability PLUS:**
    - **Local storage (ground and surface water)**
    - **Local runoff (water to tide)**
    - **Alternative water supplies**
    - **Water made available by conservation**

## **I.D. How will existing legal sources be protected?**

- **Develop Rainfall Driven Reservation rule:**
  - **Identify enhanced distribution of “existing legal source” water for natural systems:**
    - **Distribution based on revised rainfall driven operations for Everglades National Park**
    - **New rainfall driven operations for Everglades Protection Area (EPA)**
    - **Deliveries based on NSM-like targets**
    - **Considers existing system constraints**

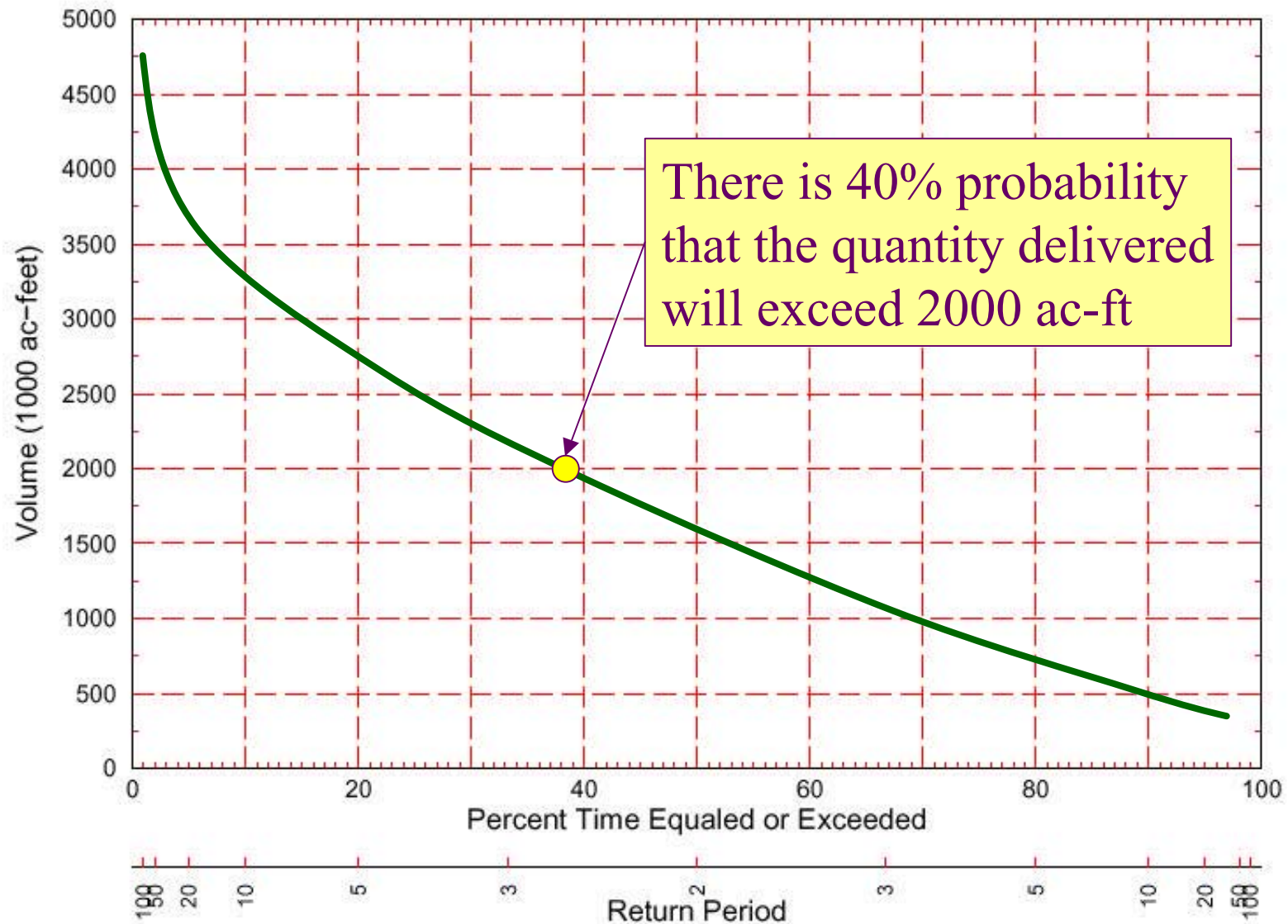
## **I.D. How will existing legal sources be protected?**

- **Develop Rainfall Driven Reservation rule (con't):**
  - **Reserved quantity not to exceed CERP 2000 existing legal source water for natural systems**
  - **No impact on “existing legal sources” or other uses**
  - **Base for future CERP reservations**
  - **Adopt as rule in 2004 prior to basin renewals of consumptive use permits**

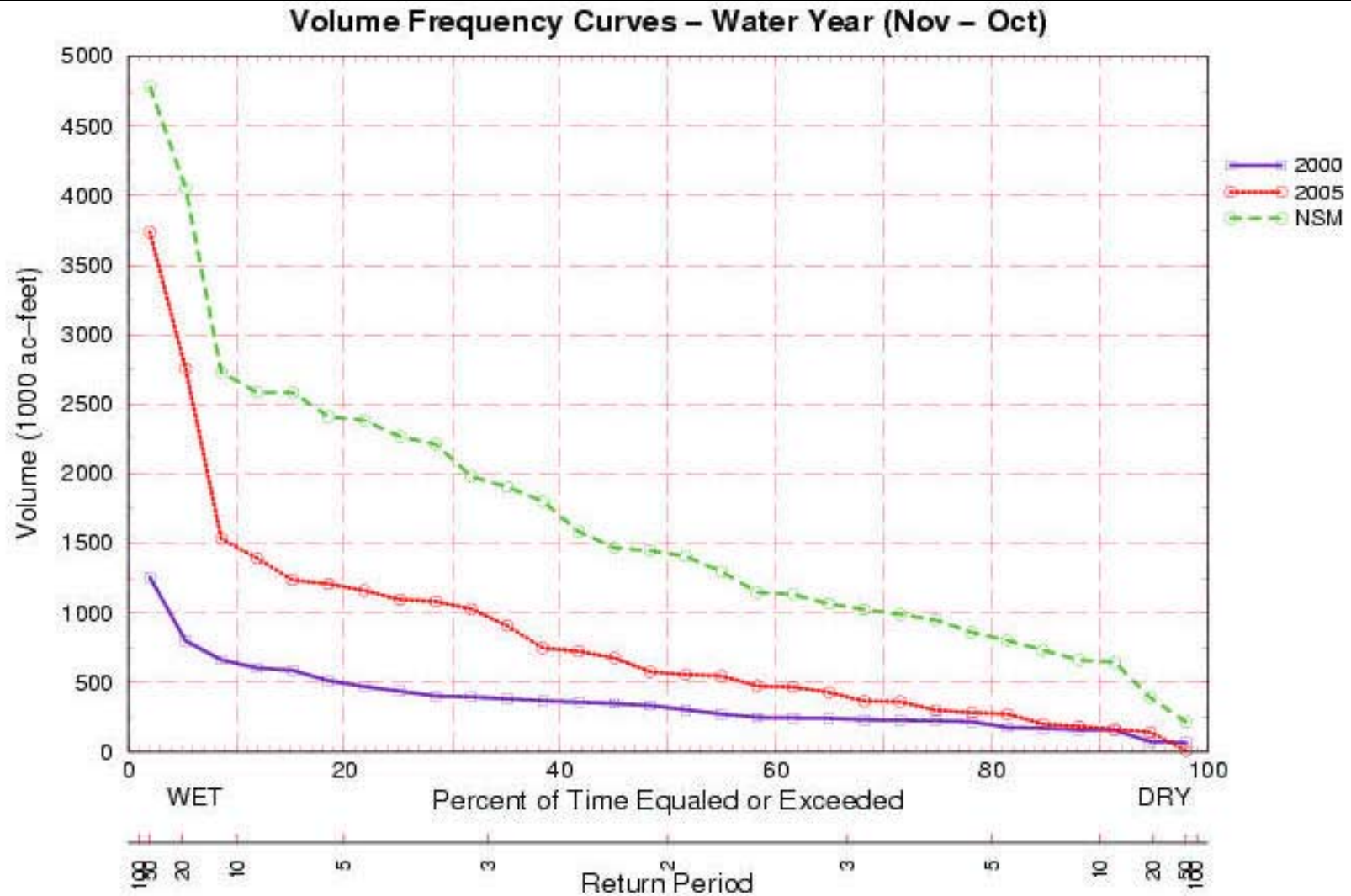
## **I.D. How will existing legal sources be protected?**

- **The Rainfall Driven Reservation will be defined as:**
  - **A volume delivered to the EPA to meet NSM-like targets, excludes regulatory discharges**
  - **Defined under all hydrologic conditions, including droughts**
  - **Volume frequency relationship**
  - **Geographically specific by sub-basin**

# Volume-Frequency Curve



# Example of Rainfall Driven Reservation to Everglades National Park



SFWMM P.O.S. 1965 – 1995  
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# Summary

## I. How to protect existing legal sources of water for natural systems & other related needs

### ■ Major Topics:

A. Define existing legal sources

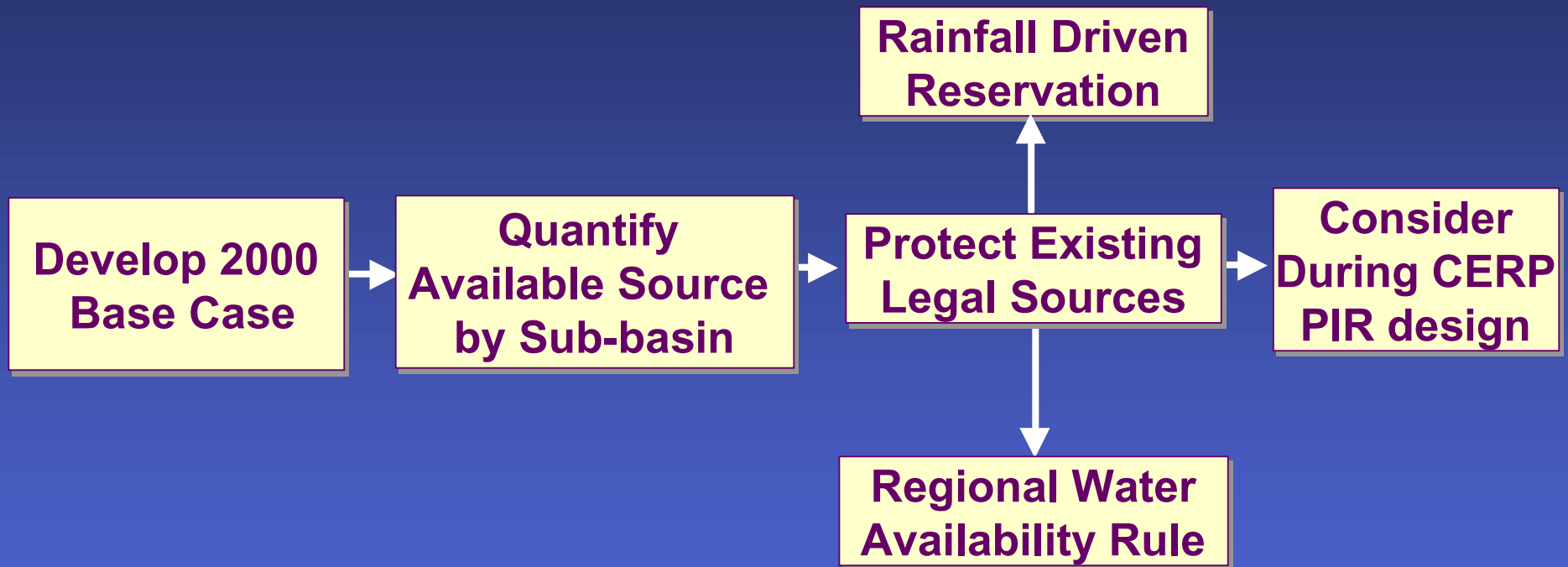
B. Define 12/2000 existing legal source base conditions

C. Quantify existing legal sources of water

D. Protect existing legal sources

- Consider during CERP design & implementation
- Develop Regional Water Availability rule
- Develop Rainfall Driven Reservation rule

# Conceptual Process for Protecting Existing Legal Sources



# Discussion



# Primary Policy Issues

- I. How to protect existing legal sources of water for natural systems & other water related needs
- II. How to protect water made available by CERP for natural systems & other water related needs
- III. Interim consumptive use permit implementation strategy

## **II. How to protect water made available by CERP for natural systems & other water related needs**

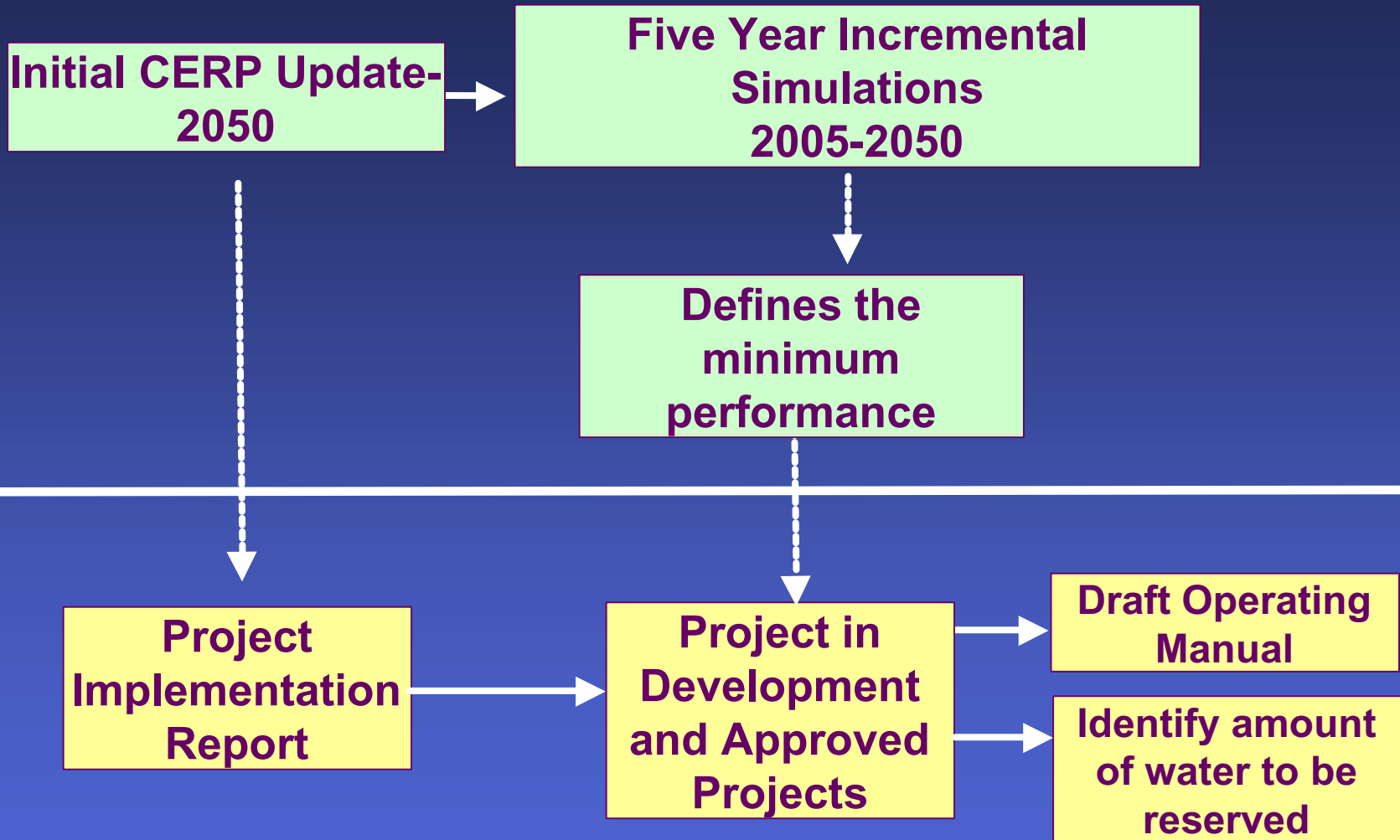
### **■ Major Topics:**

- A. Identify water made available by each CERP project for natural systems and consumptive uses**
- B. Adopt reservation to account for additional water made available for the natural system prior to PCA**
- C. Revise regional water availability rule to account for additional water made available for consumptive uses**
- D. Develop linkage to water shortages and operations**

## **II. A. Identify water to be made available by each CERP project for natural systems and consumptive uses**

- **Identify water for natural systems and other water related needs consistent with goals and objectives of CERP through time**
- **Five year incremental modeling of the CERP update will define minimum performance through time**
- **Provide for incremental benefits to the natural system, agriculture, and urban water supply**

# Initial CERP Update- Incremental Simulations of CERP Projects



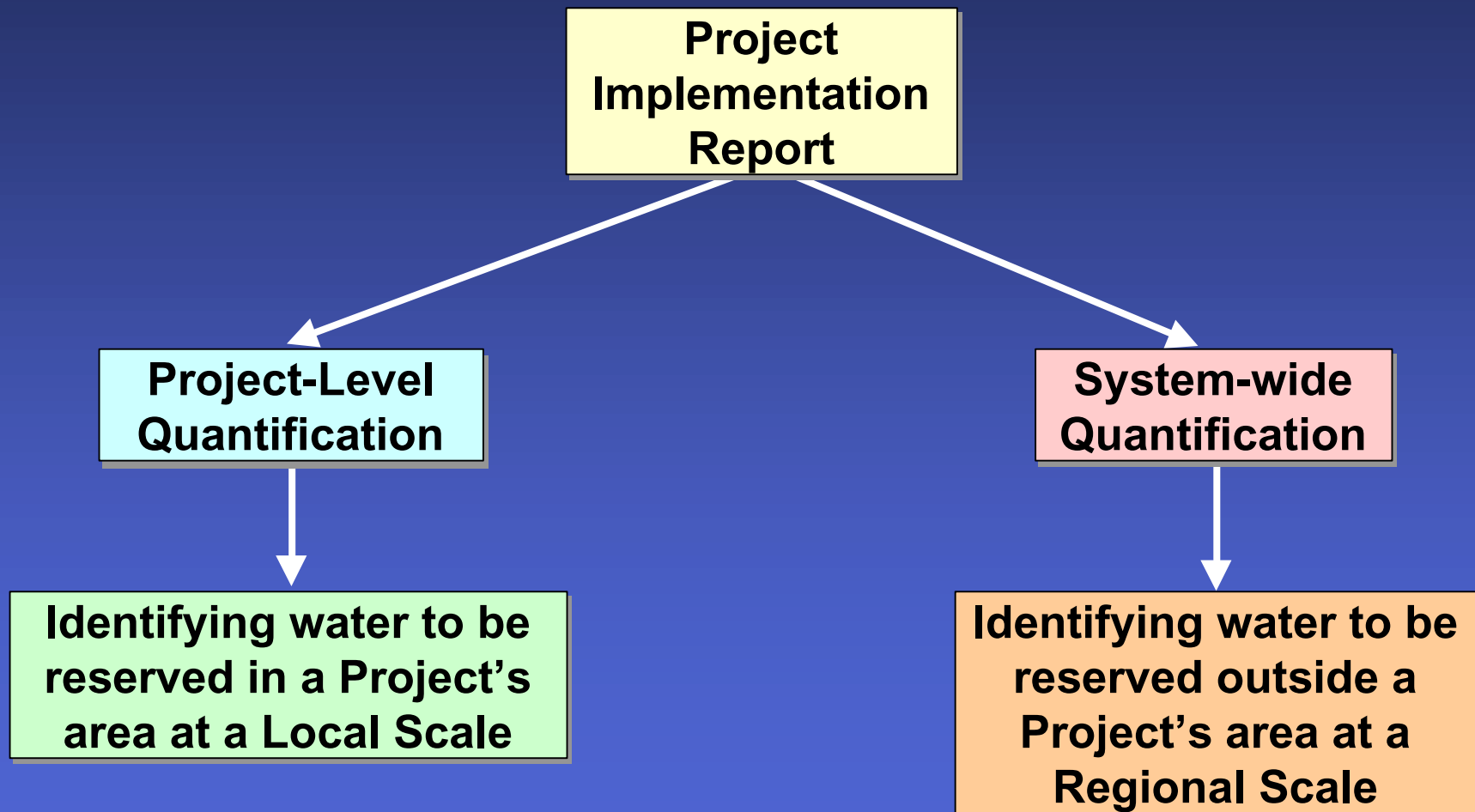
**Project Implementation Report Process**

## **II. A. Identify water to be made available by each CERP project for natural systems and consumptive uses**

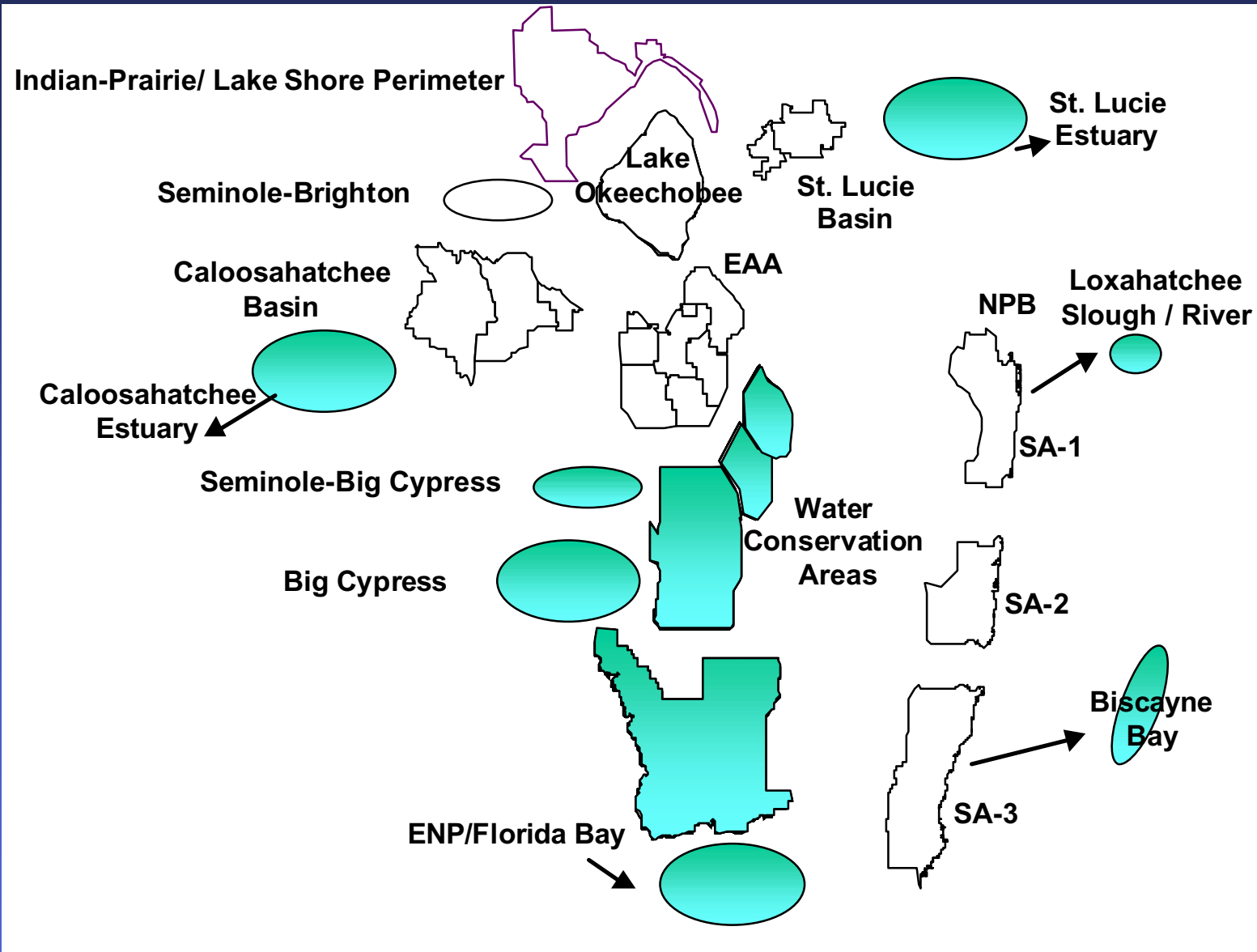
- **In PIR, identify CERP project water for natural system**
  - **Full range of hydrologic record**
- **Quantify on a system-wide level**
- **Quantify on a local level**
  - **Stormwater Treatment Areas**
  - **Wetland Systems**



# Identifying Water to be Reserved in a Project Implementation Report



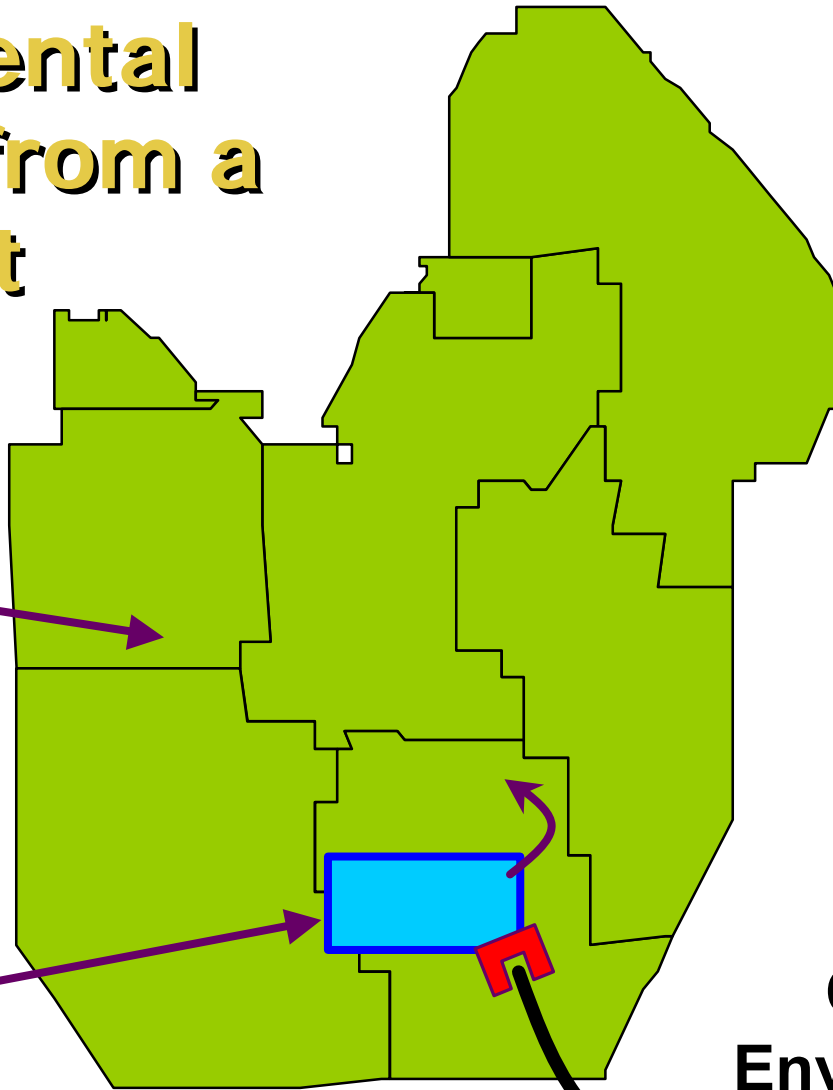
# System-wide Reservation



# Regional Environmental Deliveries from a Project

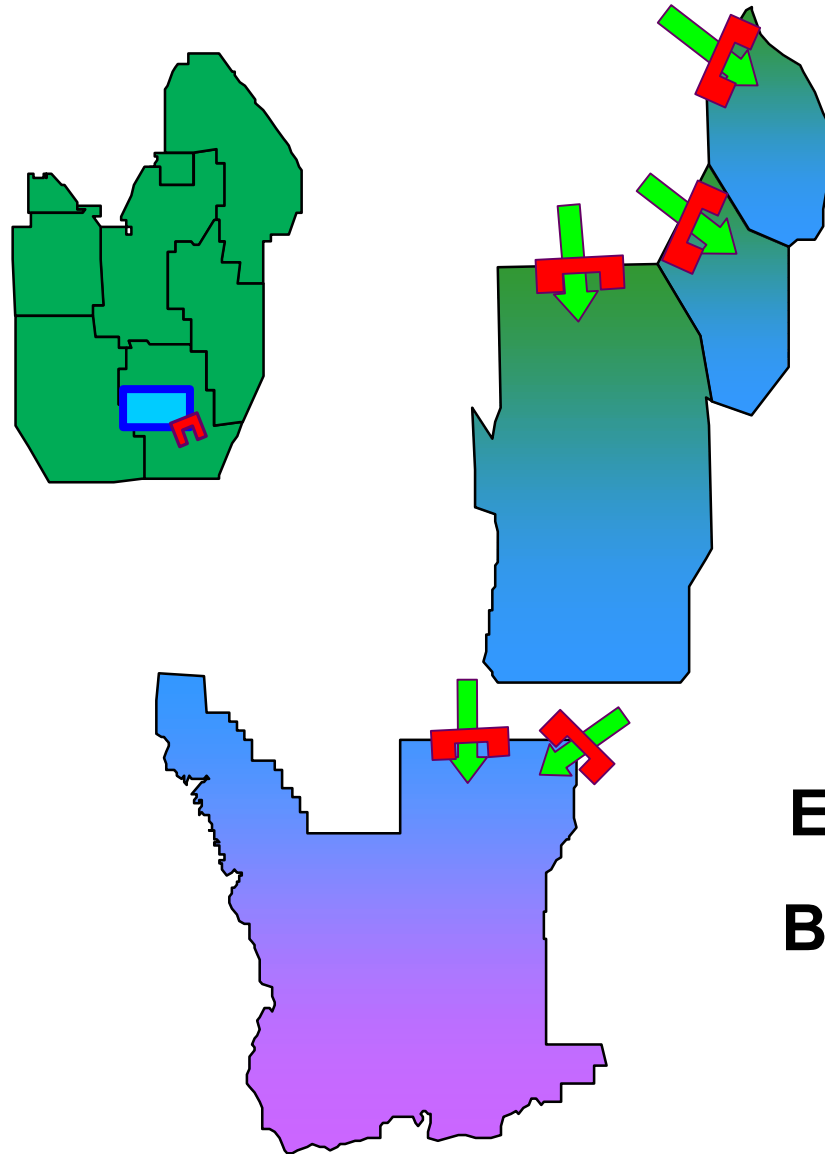
Everglades  
Agricultural  
Area

EAA  
Reservoir



Quantify  
Environmental  
Deliveries  
to WCAs

# System-wide Benefits



**Quantify  
Total  
Environmental  
Benefit to each  
Sub-region**

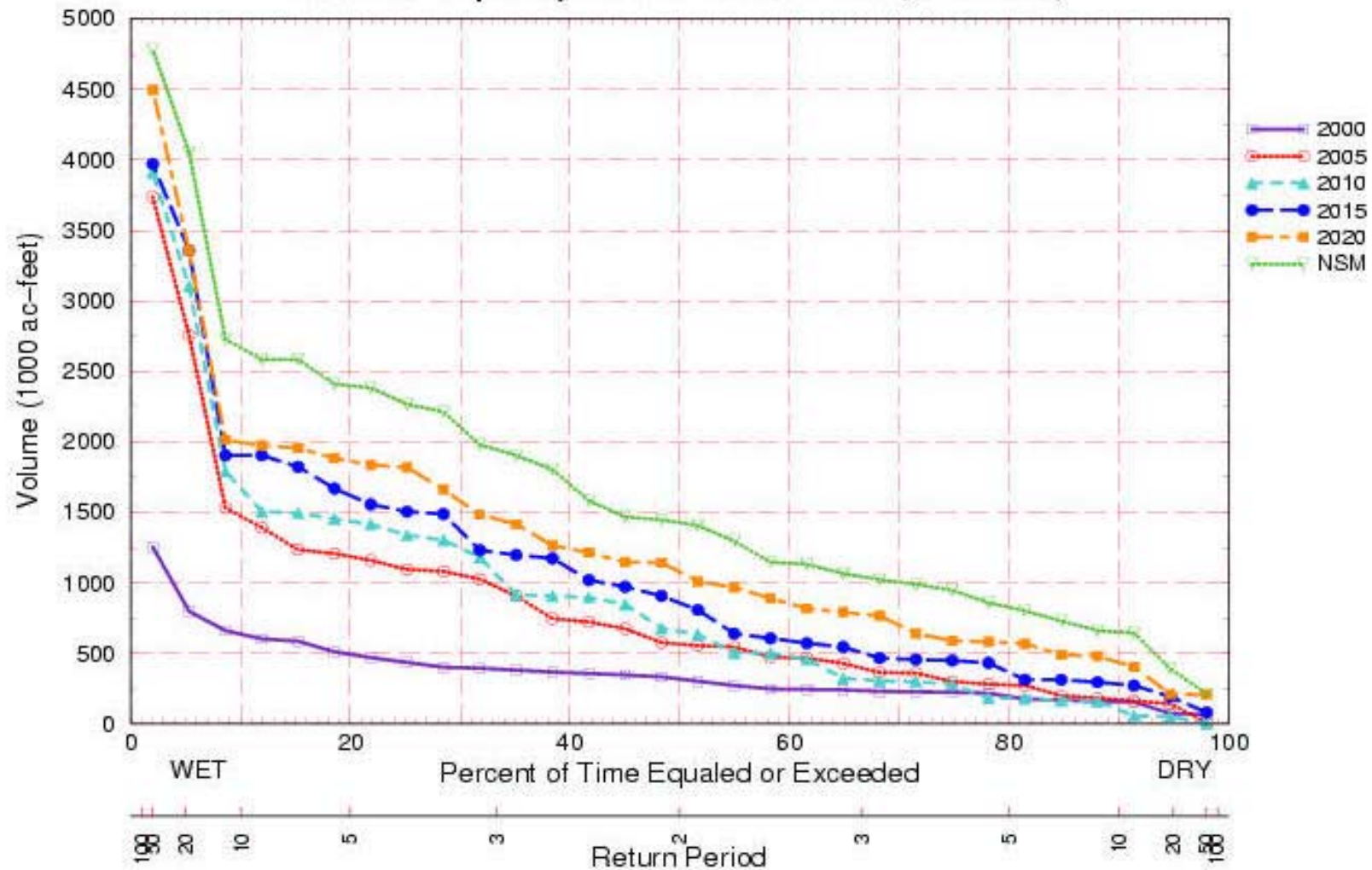
# System-wide Reservation

- Quantification performed for three periods:
  - Annual (e.g. Water year, November - October)
  - Dry Season (November - May)
  - Wet Season (June - October)

# Annual Volumes

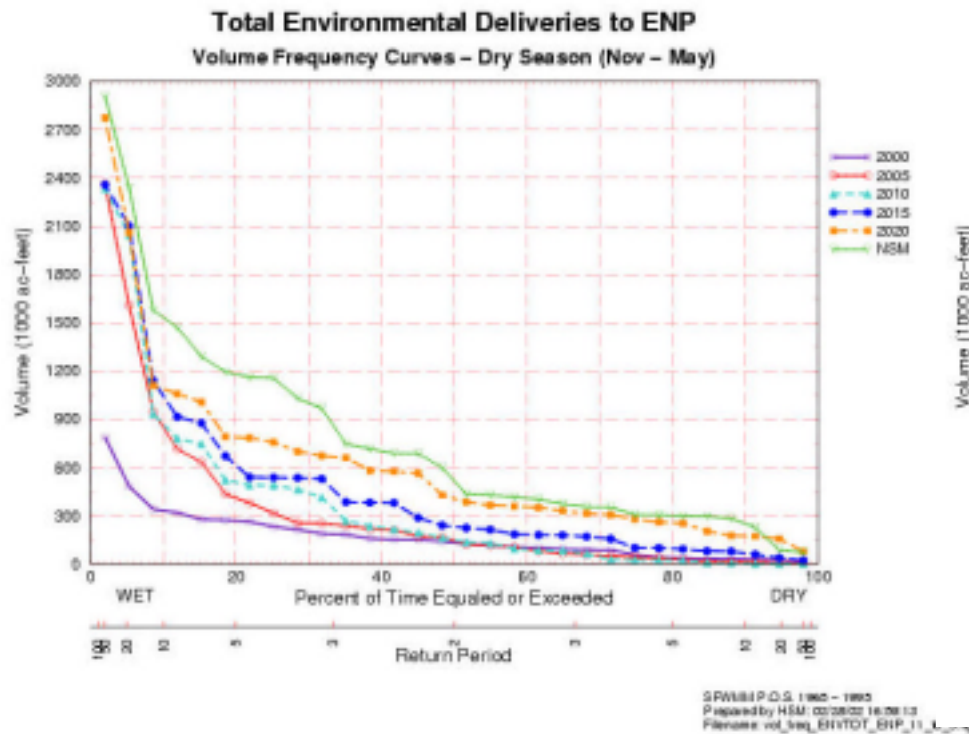
## Total Environmental Deliveries to ENP

### Volume Frequency Curves – Water Year (Nov – Oct)

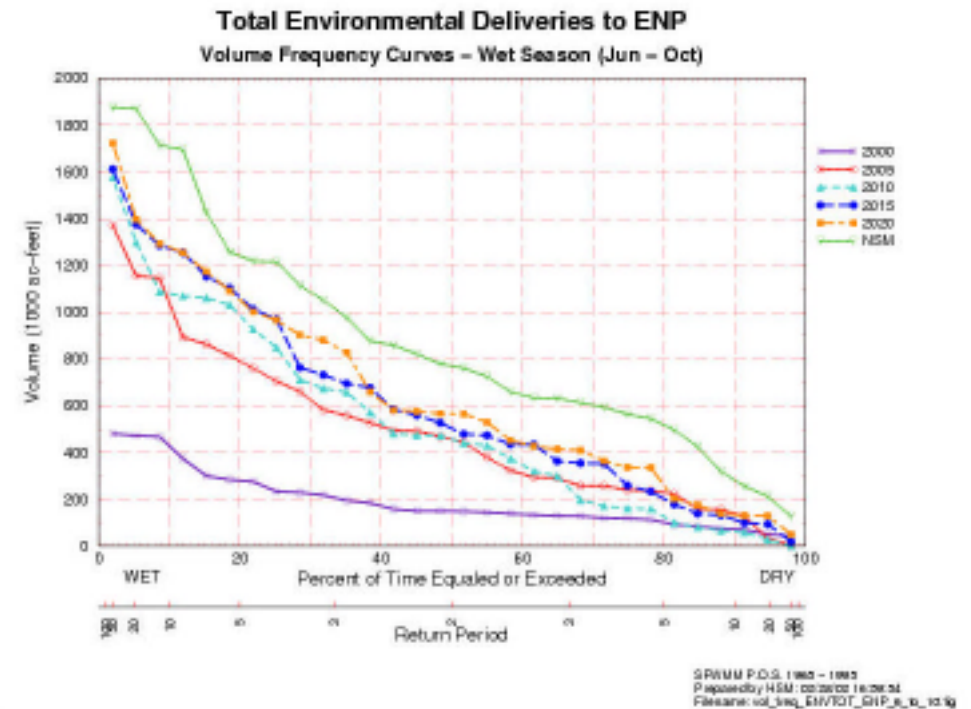


SFWMM P.O.S. 1965 – 1995  
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# Quantification by Season



**Dry Season**



**Wet Season**

## **II. B. Adopt reservation to account for additional water made available for the natural system prior to PCA**

- **Adopt reservation with conditions based on PIR prior to PCA (conditional reservation)**
- **Adopt as project level or system-wide reservation**
- **Refine reservation based on actual project performance as determined by project operational testing and monitoring (final reservation)**
- **Deliver reserved water only after project is operational and consistent with operating manual**



## **II.C. Revise regional water availability rule to account for additional water made available for consumptive uses**

- **Identify additional water made available for consumptive uses during PIR**
- **Revise regional water availability rule when water is available**
- **RWA rule based on project performance as projected under 1 in 10 year drought event**

## **II.D. Develop linkage to water shortages and operations**

- **Reservation and RWA rule to include conditions :**
  - **Protect existing legal sources in reservation rule**
  - **Amend reservation if project performance is inconsistent with PIR**
  - **Reference operational manuals**

## **II.D. Develop linkage to water shortages and operations**

- **Operational linkages:**
  - **Operations manuals must be consistent with Reservation and RWA rules**
  - **Translate reservations into stage based operations & decision trees for making real-time decisions**
  - **Conduct annual model analysis to confirm consistent implementation of operations & reservation**
  - **Track system performance through RECOVER**

## **II. D. Develop linkage to water shortages and operations**

- **Water Shortage Linkage:**
  - **Identify considerations on how to distribute water for competing needs during water shortage**
  - **Governing Board process**
    - **Public Health and Safety**
    - **Fish and Wildlife**
  - **Provide linkage with operating manual**

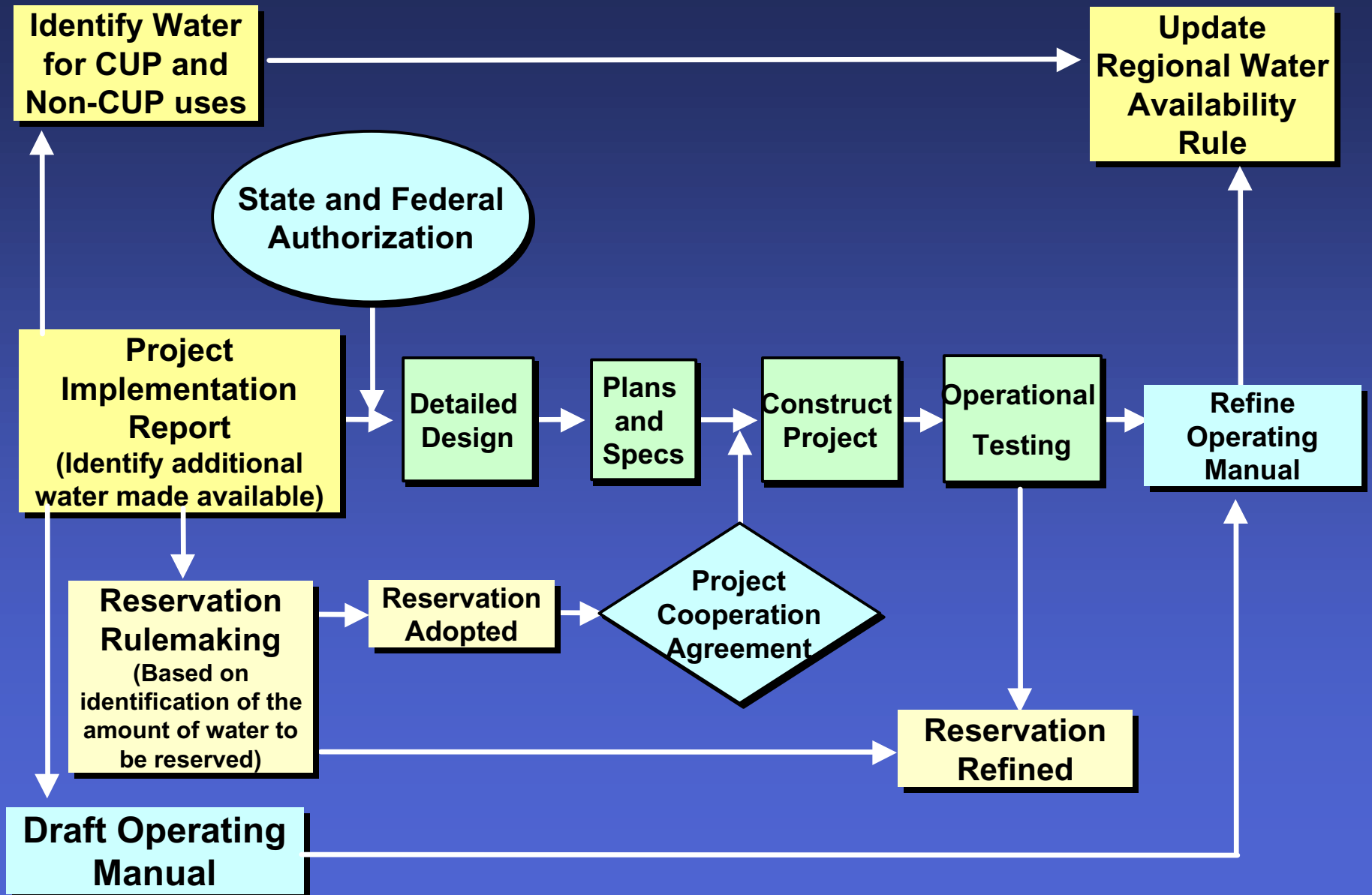
# Summary

## II. How to protect water made available by CERP for natural systems & other water related needs

### ■ Major Topics:

- A.** Identify water made available by each CERP project for natural systems and consumptive uses
- B.** Adopt reservation to account for additional water made available for the natural system prior to PCA
- C.** Revise regional water availability rule to account for additional water made available for consumptive uses
- D.** Develop linkage to water shortages and operations

# Relationship of Reservations to CERP Project Implementation Process



# Discussion



# Primary Policy Issues

- I. How to protect existing legal sources of water for natural systems & other water related needs
- II. How to protect water made available by CERP for natural systems & other water related needs
- III. Interim consumptive use permit implementation strategy



# **Interim consumptive use permit implementation strategy**

**Scott Burns, P.G.  
Director of Water Use Permitting**

### **III. Interim consumptive use permit implementation strategy**

- **Major Topics:**

- A. Preliminary Governing Board input on interim CUP issues**

- B. Introduce long-term permitting considerations for CERP implementation**

## **III. A. Preliminary Governing Board input on interim CUP issues**

- **Issue #1: Applicants requesting allocations based on faster growth rates than contemplated in Regional Water Supply Plans and CERP**
  - **Implications:**
    - **Some projects request more water from the regional system and sooner than contemplated, or than provided for**
    - **In providing for the greater/ earlier demands, potential for:**
      - **Use of “environmental” water**
      - **Competition within source basin for remaining source**

## **III. A. Preliminary Governing Board input on interim CUP issues**

- **Issue #1: Applicants requesting allocations based on faster growth rates than contemplated in Regional Water Supply Plans and CERP (con't)**

- **Considerations:**

- **MFL rule and recovery plan**
- **LEC and CERP plans met increasing environmental demands in unison with increasing consumptive uses**
- **Permits historically considered “first in time, first in right”**
- **WRDA Baseline**
- **PWS demands explicitly evaluated in plans, other use classes implicitly evaluated**
- **Magnitude of demands for regional water varies**

## **III. A. Preliminary Governing Board input on interim CUP issues**

- **Issue #1: Applicants requesting allocations based on faster growth rates than contemplated in Regional Water Supply Plans and CERP (con't)**

- **Options:**

- **Allocate reasonable/ beneficial demands first come, first serve until all available regional water used up**
- **Constrain reasonable/ beneficial demands on regional system water to the five year schedules in LEC**
- **Don't authorize withdrawals that increase any demands from regional system until RWA rule is completed:**
  - **Project level (?)**
  - **Source basin level (?)**

## III. A. Preliminary Governing Board input on interim CUP issues

- Issue #2: CUP applicants requesting 20 year duration permits
  - Implications:
    - Precedent “good for one, good for all”
      - Potential for rush of permit applications
    - Potential for unraveling protections for regional environmental and local water availability
    - Opportunity to provide incentives for alternative supply development

## III. A. Preliminary Governing Board input on interim CUP issues

- Issue #2: CUP applicants requesting 20 year duration permits (con't)

- Considerations:

- Section 373.236, F.S.: Shall issue 20 year permits, if conditions of issuance met for permit duration
- Conditions for issuance linked to CERP project operation?
  - Preserve and protect existing and future water availability for environment and all users “equitably”?
  - Local versus regional sources

## III. A. Preliminary Governing Board input on interim CUP issues

### ■ Issue #2: CUP applicants requesting 20 year duration permits (con't)

#### ■ Considerations (con't):

##### ■ LEC Plan recommendation:

- Source availability versus new uses provided by CERP
- Alternative supply source incentives

##### ■ Current practice:

- PWS - 5 years
- Irrigation uses - basin expiration date
- Alternative sources (R.O. + reclaimed) - 20 year duration



## III. A. Preliminary Governing Board input on interim CUP issues

- Issue #2: CUP applicants requesting 20 year duration permits (con't)
  - Options:
    - Continue current practice (5 year/ basin expiration); adopt rules for LEC recommendations (20 year permits); and issue long-term duration permits at basin expiration/ renewal process
    - Issue 20 year permits for historic uses and future demands met with alternative sources ad hoc, until rules adopted

## **III. B. Introduce long-term permitting considerations for CERP implementation**

- **Preliminary permitting concepts:**
  - **Propose new consumptive use permit conditions of issuance specific to CERP**
    - **Protection of reservation**
    - **Protection of existing sources for future allocation**
    - **Assure proposed CUP allocations do not “over-extend” CERP water identified for consumptive use**
    - **Prohibit allocation of CERP water before project operation**

## **III. B. Introduce long-term permitting considerations for CERP implementation**

- **Preliminary permitting concepts (con't):**
  - **Provide incentives for development alternative water supplies**
    - **Permit duration**
    - **Protection from water shortage cutbacks**
  - **Others to be determined?**

## **III. B. Introduce long-term permitting considerations for CERP implementation**

### **■ Proposed public input process:**

- White paper**
- Water Resource Advisory Committee**
- Public workshops**
- Governing Board meetings**
- Rule development**

# Summary

## III. Interim consumptive use permit implementation strategy

- Major Topics:

- A. Introduce long-term permitting considerations for CERP implementation

- B. Preliminary Governing Board input on identified CUP issues

# Discussion



# **Water Reservation Strategy and Related Consumptive Use Issues**

**Introduction: Why we are here**

**State and Federal Mandates**

**State Implementation Tools**

**Primary Policy Issues**

**Summary and Schedules**

# Summary and Schedules

## Schedule of State Commitments:

- Reservation white paper revised and distributed for public comment (May 2002)
- Begin public workshops on reservations methodology (June 2002)
- Complete CERP 2000 Base Case (2002)
- Identify existing legal sources (2002)



# Summary and Schedules

## Schedule of State Commitment (con't):

- Develop and adopt conditional Regional Water Availability rule (2003)
- Develop and adopt initial reservation for rainfall driven deliveries (2004)
- Complete CUP rule revisions, including conditions for issuance & permit durations (2002-2004)

# Discussion

